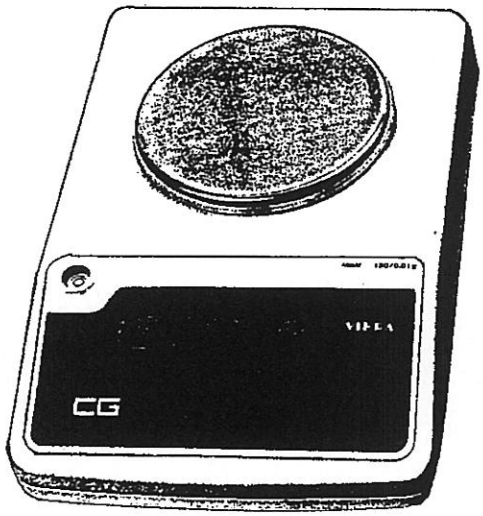
3022M01

CG series

OPERATION MANUAL



VIBRA

SHINKO DENSHI CO., LTD.

CONTENTS

INTRODUCTION TO CG SCALE

Your CG scale is the ultimate electronic scale of this range ! Its robust aluminum body and mechanism with highly integrated electronics ensures you a long term use almost free from maintenance.

Your CG does not require any warm up time. Its Tuning-Fork sensor offers you most accurate result even just after energizing.

Your CG does not require calibration in long term operation. Calibration is required only when it is re-located, not before daily operation.

GENERAL SPECIFICATIONS

Weighing Method	: Tuning-fork frequency sensing method
Tare	: Full range, semi-automatic
Zero Tracking	: Auto zero tracking, within $\pm$ 3 divisions
Calibration	: Semi-automatic calibration with reference weight
Temperature	: 0°C to 40°C
Humidity	: 80% r.h. or less
Display	: Custom LCD of 12.5mm height
Power Source	: Exclusive AC adaptor, DC9V/400mA Built-in rechargeable battery (option)
Functions	: Ordinary weighing Counting (sample quantity selectable, sampling with unit weight improving) Comparator (judgment by setting HI/LOW limits, with actual samples, or by key operation)
Weight Units Selectable	: g, kg, ct, oz, lb, ozt, dwt, gr, tael, mom
Output	: Various outputs are available at option. Listed in page 2.
Standard Accessories	: Operation Manual, AC adaptor, Dust Cover fixed on the scale

OPTIONS

OUTPUTS - to be built in the scale -

CGIJ output : IJ output for Shinko printers.

CGR output : RS232C output, bidirectional.

CGR4 output : RS422A output, bidirectional.

CGBZ output : Buzzer & IJ output for comparator function and printer.

CGLM output : Relay Contact & IJ output for comparator function and printer.

INTERFACE PACKAGES - to be fixed outside of the scale -

RP-1 : RS232C interface pack, bidirectiona. Requires IJ output in the scale.

LP-1 : Relay Contact pack. Requires IJ output in the scale.

RECHARGEABLE BATTERY

CG BATTERY : Built-in NiCd battery unit, operable for 48 hours under non-output condition, charged in 12 hours.

PRINTERS CSP-16 : Operation Micro-Printer for ordinary roll paper.

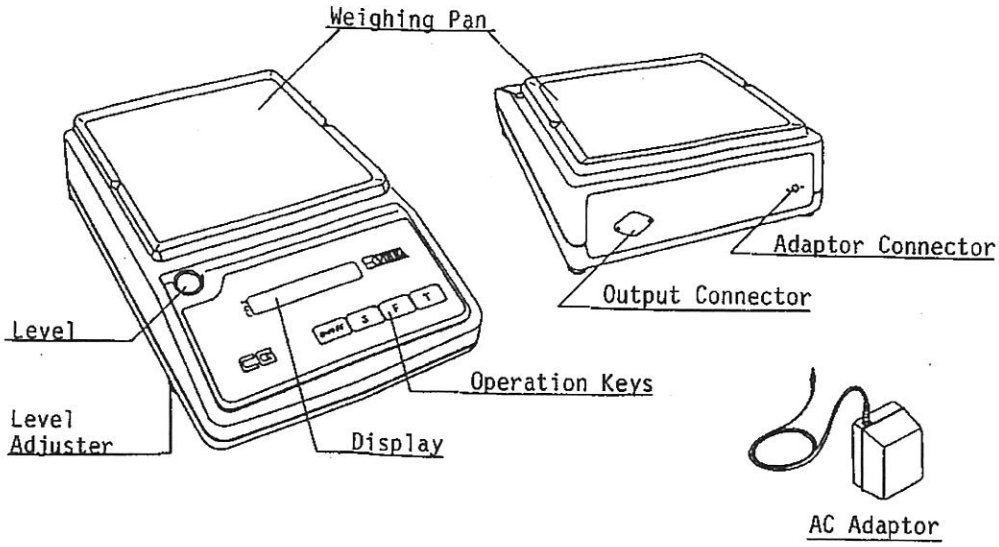
CSP-193 : Operation Printer for thermal roll paper, printing date.

OTHERS Windshield / Precision Calibration Weights

MODELS

MODEL	Capacity	Readability	Pan size	Weight
CG-150	150g	0.01g	140 dia	2.8kg
CG-300	300g	0.01g	140 dia	2.8kg
CG-600	600g	0.02g	140 dia	2.8kg
CG-620	620g	0.01g	140 dia	2.8kg
CG-1500	1500g	0.1g	190×190	3.5kg
CG-3000	3000g	0.1g	190×190	3.5kg
CG-6000	6000g	0.2g	190×190	3.5kg
CG-6200	6200g	0.1g	190×190	3.5kg
CG-12K	12000g	1g	190×190	3.5kg

EXTERNAL VIEW & NAMES OF PARTS



KEY FUNCTIONS

[ON/OFF] : ON/OFF key

[S] : Key for reading limits, and key for stop settings.

[F] : Key for setting limits in comparator and setting unit weight in counting.
Key for storing parameters, and for calling functions.
Also key for setting digits of parameters.

[T] : Key for tare.
Also key for selection of parameters.

CHARACTERS

g : Weight unit in weighing.

pcs : Unit indication in counting mode.

◀ : Indicates result of judgment in comparator mode.

▼ : Indicates battery has run out (option).

M : Indicates the scale is under setting operation, or sampling.

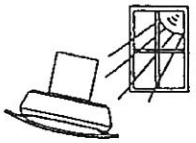
▶ : Appears when other weight unit than "g", "kg" or "lb" is selected. It is recommended to stick a seal of the weight unit at the mark.

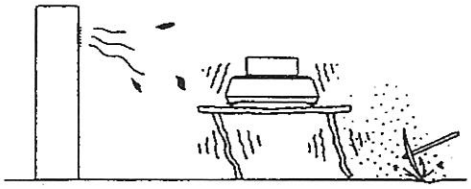
INSTALLTION

1. LOCATION

VIBRA CG scale is very robust, still it is a "precision weighing instrument" which requires gentle operation and handlings with care. Install the unit in good conditions for optimum result. Locations as followings may cause erroneous results.

1. Area having a soft floor to make the scale not level.
2. Area where temperature changes abruptly.
3. Area in high humidity or dusts.
4. On an unstable base or near to a source of vibration.
5. Area exposed to a wind from a fan or a cooler.
6. Area exposed to direct sunlight.





2. UNPACKING

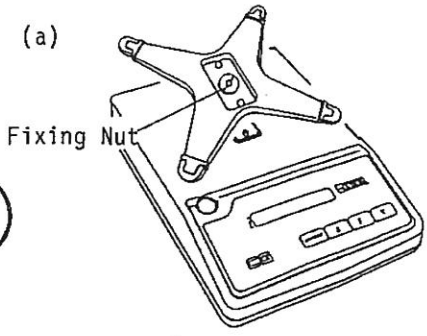
Unpack the container carefully. Examine the packaging and the device for damage, and report to the shipper if any. Don't drop the scale. Check the enclosures as follows:

1. The scale
2. The weighing pan and the pan base
3. AC adaptor
4. Operation Manual

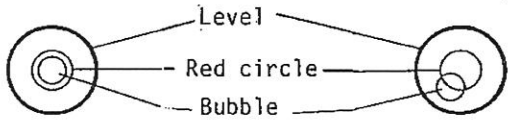
3. LOADING WEIGHING PAN

Place the pan base packed with the weighing pan on the scale. Fix it on the shaft by driving the knurled nut in the centre. Place the weighing pan properly on the pan base. See (a).

(a)



(b)



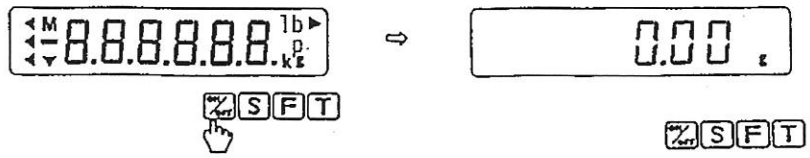
4. LEVELING

Watch if the scale is level. Locate the level in front of the scale, and four adjusting legs beneath it. Drive these legs to centre the bubble in the red circle of the level. Watch if all legs are settled on the table securely. See (b).

5. PERFORMANCE TEST

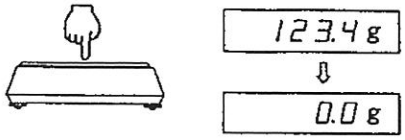
(1) Connect the AC adaptor with the rear of the scale, then plug the cord in line outlet.

(2) Press the ON/OFF . All segments and characters will blink twice as a self test.



(3) Verify that the display changes by touching the pan slightly, and that it returns immediately to the original by releasing it.

* Blinks of weight unit such as "g" indicates unstable situation of data.

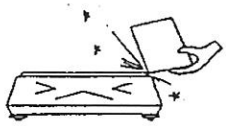


NOTES

* After installation, or after long term use, data displayed may sometimes be erroneous. Calibrate the scale in such cases referring to page 18.

** Load/unload objects gently. A side impact to the scale may sometimes be a cause of damage on the mechanism, in particular.

*** An overload message " o-Err " will appear as warning when the load exceeds F.S. + 9 divisions.



TOPIC FUNCTIONS OF CG

Your CG has two basic modes, the Ordinary Weighing Mode and Counting Mode. In the ordinary weighing mode, CG offers you Comparator function in addition. To call those functions; press [F] key for 2 to 3 sec to read "Func". When you release the key, it displays 1. SEt [ ] for setting in Counting Mode. Pressing [F] key reads as 2. SEL. [ ] for setting Comparator function.

-Deatils are written in page 15 & 16-

OPERATIONS

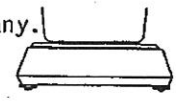
* Warming up of CG scale is almost unnecessary. 4 to 5 minute warming up will give you optimum results, howver.

** The CG scale is available weighing in 12 different weight unit. For selection of a weight unit from them, see page 17.

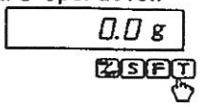
1. ORDINARY WEIGHING

(1) Press the ON/OFF key to perform self test.

(2) Place the tare container on the pan if any. Press the [T] key to display "0".

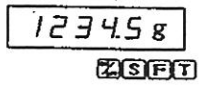


Tare operation



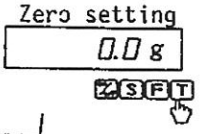
(3) Load objects in the container, and read the display which is the net weight value.

Net weight



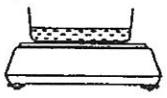
(4) After removing the container, or when the display is not "0" wihtout any load, press the [T] key to set at "0".

Zero setting

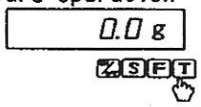


*** FOR MEASUREMENT OF ADDITIONAL COMPONENTS

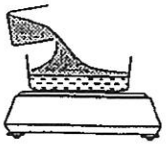
(5) Without removing the container including the first components, press the [T] key to read "0".



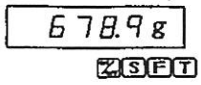
Tare operation



(6) Then add next components in the container. The display shows net weight of added components.



Net added value



NOTES

1. While "g" is blinking, the data is unstable. Allow the unit until "g" fixes. In other weight unit mode, "lb" or "▶" shows such situation.
2. Tare operation should also be done the same in counting mode.
3. Net weighing range of the scale will be decreased by the tare value.

2. COMPARATOR FUNCTION

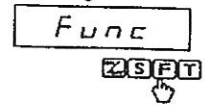
The CG scale has the Comparator Function, which judges if the object has weight in a specific range by setting upper/lower limits. The Comparator function is available only in ordinary weighing mode of the scale.

PRE-SETTING OF COMPARATOR FUNCTION

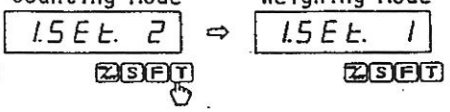
Before setting limits for judgments, conditions for judgments must be fixed by following key operation:

(1) To reach Function Mode;
press the [F] key for about 2 seconds.
Release it when "Func" appears.

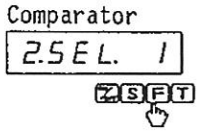
Calling Functions

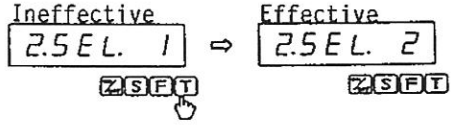


(2) Then display changes to "1. SEt.␣".
Set the parameter at Ordinary Weighing Mode "1. SEt. 1" by hitting [T] key.



(3) Hit [F] key to read "2. SEL.␣",
Comparator Setting. Set the parameter at "2. SEL. 2", Comparator is effective.
Refer to the list in the column underneath.



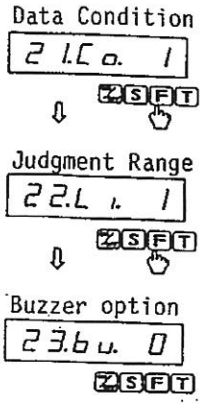


1. SEt.	1	: Ordinary Weighing Mode
	2	: Counting Mode ... advance to 3. A.0
2. SEL.	1	: Comparator is not effective ...advance to 3. A.0
	2	: Comparator is effective .....advance to 21.Co.
21. Co.	1	: Constant judgment
	2	: Judgment of settled data only
22. Li.	1	: Judgment for full range
	0	: No judgment around zero and for negative data
23. bu.	0	: ◀ mark fixes, or No buzzer sign(option)
	1	: ◀ mark flickers or Buzzer sign for LOW data (option)
	2	: ◀ mark flickers or Buzzer sign for GOOD data(option)
	3	: ◀ mark flickers or Buzzer sign for HIGH data(option)
	4	: ◀ mark flickers or Buzzer sign for LOW/GOOD (option)
	5	: ◀ mark flickers or Buzzer sign for GOOD/HIGH(option)
	6	: ◀ mark flickers or Buzzer sign for LOW/HIGH (option)

(4) Selection of Judgment Conditions

By hitting F key, function item will advance to next one as ; 21. Co. ⌴
22. Li. ⌴
23. bu. ⌴

Set at suitable one for your work referring to the Function List in page 8.



* If you have not employed the Buzzer option, hit [F] key to pass "23. bu.⌴".

POINTS OF KEY OPERATION

* To advance the function item, hit [F] key.
** To change parameter, hit [T] key.
*** To stop setting operation and return to original measurement mode, hit [S] key.

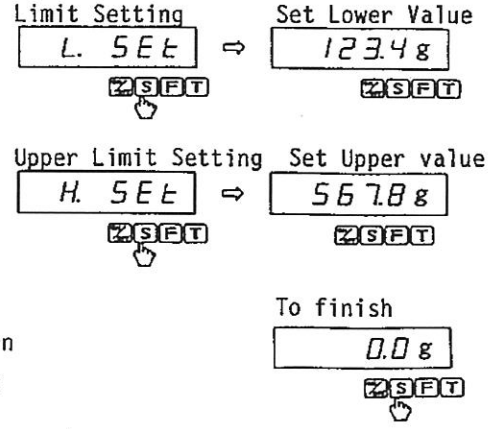
SETTING/READING OF UPPER/LOWER LIMIT

HOW TO VERIFY CURRENT SET LIMITS

(1) Press [S] key for 2 to 3 seconds and release when "L. SEt" appears. Display shows current lower limit with ◀ mark blinking at L.

(2) Hitting [S] key changes display to "H. SEt". Then display shows current upper limit with ◀ mark blinking at H.

(3) Hitting the [S] key again will return the display to the original weighing mode.



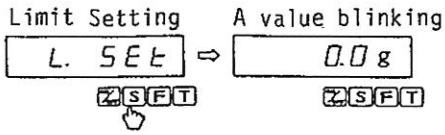
NOTE If you are unable to call "L. SEt" by pressing [S] key, the scale is not set in Comparator Mode, or it is in Counting Mode. See page 8.

TWO DIFFERENT METHODS OF SETTING LIMITS IN THE SCALE

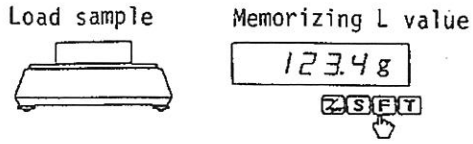
A. Setting with reference sample for judgment by placing the sample on*
B. Setting values for judgment by key operation. *the scale.

LIMIT (REFERENCE VALUE) SETTING WITH ACTUAL SAMPLE

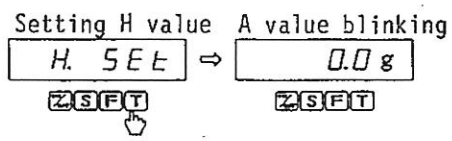
(1) Press [S] key for 2 to 3 seconds and release it when "L SEt" appears. ◀mark will blink at L. Also M mark and a value will blink in the display.



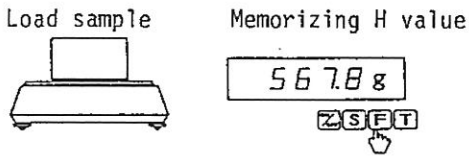
(2) Load the actual sample on the pan and hit [F] key. After M mark blinking, the lower reference value will be displayed and memorized.



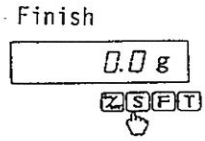
(3) Hit [S] key to read "H. SEt" and ◀mark blinking at H with M.



(4) Load the actual sample for the upper limit on the scale and hit [F] key. After M mark blinking, the upper reference value will be displayed and memorized.



(5) Hit [S] key to finalaize and to return to the original weighing mode.



RESULT INDICATION

Results of judgments are indicated by ◀ mark at H(high), C(good) and L(low).

H (high) : The object is of the upper limit or over
... Upper Limit ≦ Object

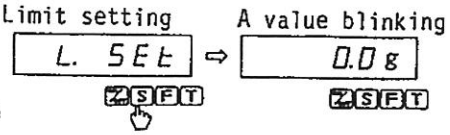
C (good) : The object is within the limits
... Upper L. > Object ≧ Lower L.

L (low) : The object is of the lower limit or less
... Lower Limit > Object

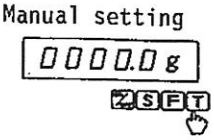
* When all three triangles are lit and blinking, the setting of limits is erroneous.

LIMIT (REFERENCE VALUE) SETTING BY KEY OPERATION

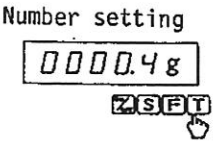
(1) Press [S] key for 2 to 3 seconds and release it when "L. SEt" appears. ◀ mark will blink at L. Also M mark and a value will blink in the display.



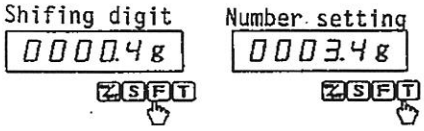
(2) Press [T] key to start manual setting for Lower Limit. All digits will be displayed and the last digit will blink.



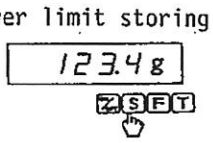
(3) Set necessary value for the last digit by hitting [T] key, which changes the number successively. 0⇨1⇨2⇨3·····8⇨9⇨



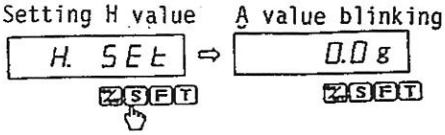
(4) Pressing [F] key advances the digit to the left indicating by blinking the digit. Set necessary value for the digit by hitting [T] key.



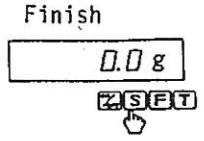
(5) Set all the numbers for the lower limit by operations of [F] key and [T] key. To complete the lower limit, hit [S] key finally.



(6) To start setting of Upper Limit, hit [S] key once again. Set the value for upper limit in the same manner as for the lower limit. Hit [S] key to finalize.



(7) Hitting [S] key once again returns the display to original weighing mode.



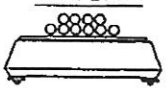
3. COUNTING OPERATION

The CG scale is available to count the number of objects in pieces in its Counting Mode "1. SEt. 2", by memorizing reference unit weight with some quantity of samples.

EXAMPLES

Loading 10 pieces of samples for example, CG processes average unit weight of these 10 pieces.

SAMPLING



Sample:10 pcs.
Weight:10 g

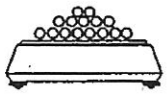
Average unit weight = piece weight = UNIT WEIGHT
This operation is called as SAMPLING.

$$\frac{10\ g}{10\ pcs} = 1g\ (Unit\ Weight)$$

Then loading unknown number of objects, CG processes quantity of the objects with the UNIT WEIGHT.

$$\frac{TOTAL\ WEIGHT}{UNIT\ WEIGHT} = PCS$$

COUNTING



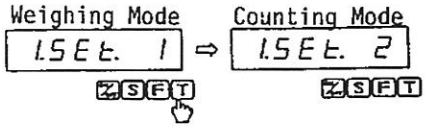
Unknown quantity
Weight : 250 g

$$\frac{250g}{1g(unit\ weight)} = 250\ pcs.$$

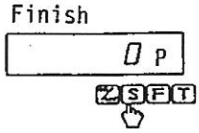
PRE-SETTING TO COUNTING MODE

(1) Prees [F] key for about 2 seconds. Release it when "Func" appears.

(2) Then display changes to "1. SEt.␣". Set the parameter at Counting Mode "1. SEt. 2" by hitting [T] key.



(3) Hit [S] key to change the display to counting mode.



QUANTITY OF SAMPLE

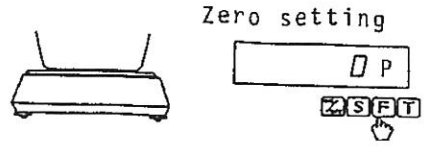
* The sample quantity may be choosen from 10 pcs, 30 pcs, 50 pcs, and 100 pcs.

** UNIT WEIGHT IMPROVEMENT (renewal) is recommended for precise counting, as, counting of large quantity by relatively small quantity sample may cause erroneous result. See (6) in page 13.

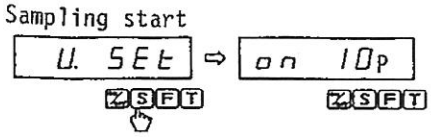
*** As a reference for final sample quantity, 1/10 pcs of the quantity of loading object is recommended for the most precise counting.

SAMPLING OPERATION

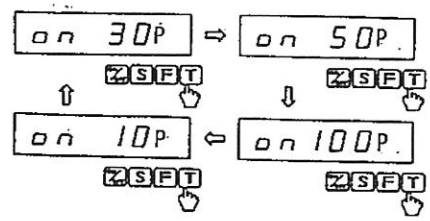
(1) Press [T] key to clear display to zero, even it currently shows "0".



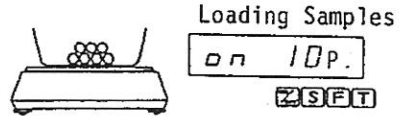
(2) Press [F] key shortly and release it when "U.SEt" for Sampling mode appears.



(3) "on 10" appears, requesting 10 samples to be loaded. By hitting [T] key, the sample quantity may be changed as shown in the right.

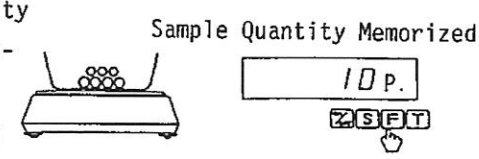


(4) Load samples of the set quantity on the scale, by counting accurately beforehand. Load all samples in one lot.



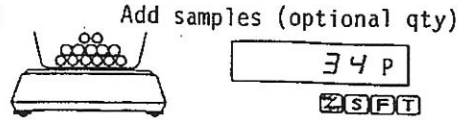
(5) By hitting [F] key, the sample quantity is memorized and display starts blinking.

* If then [S] key is hit, the sampling is finished and the unit weight is stored with this sample quantity.

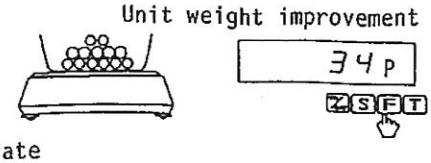


(6) UNIT WEIGHT IMPROVEMENT

The blinking of the display shows that the mode is available to improve the unit weight by adding samples. Add samples at optional quantity, 2 or 3 times of original samples.

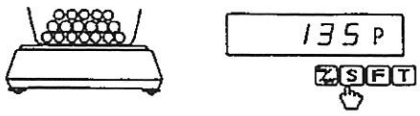


(7) By hitting [F] key, the old unit weight is renewed with better one for increased quantity.
The display will still blink to indicate further addition of samples is available to improve the accuracy of unit weight.



(8) To finalize the sampling, hit [S] key, and the display will return to the original counting mode.

Sampling finish



COUNTING

By loading unknown quantity of objects, the display indicates accurate quantity of the total load.

MESSAGES

* L-Err : The unit weight of the sample is too light for the scale readability.
The countable unit weight of the object is the scale readability.

** Add : The total weight of loaded samples is too light to process an accurate unit weight. This message appears for a short moment and afterwards M amrk and ◀mark at L indicates this status of samples.
* When this message appears, increase sample until the sign disappears.

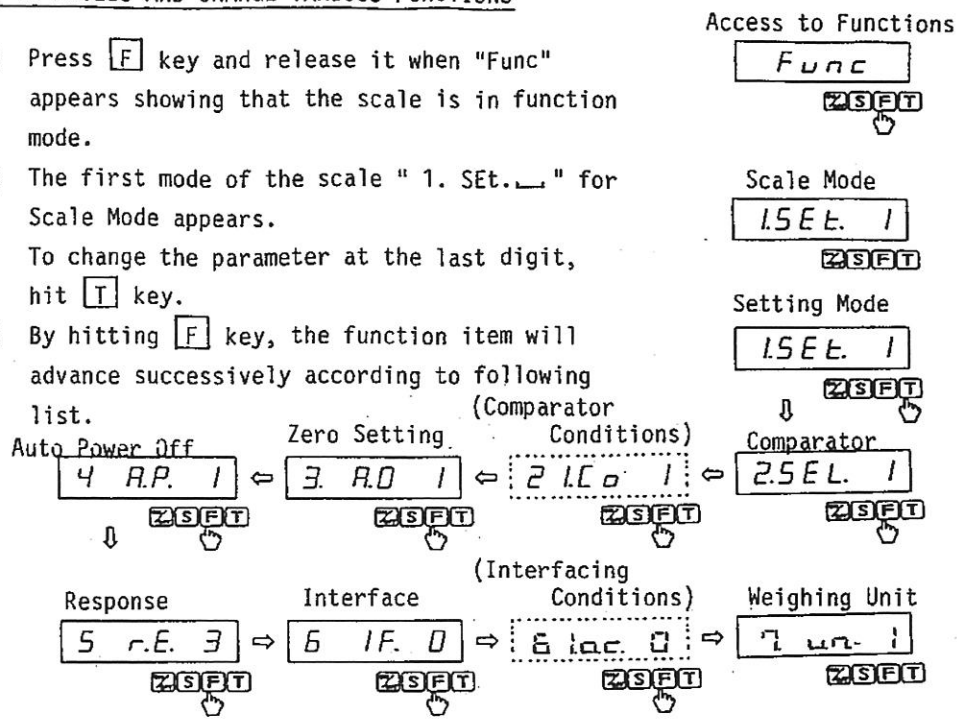
FUNCTIONS

HOW TO ACCESS AND CHANGE VARIOUS FUNCTIONS

(1) Press [F] key and release it when "Func" appears showing that the scale is in function mode.

(2) The first mode of the scale " 1. SEt.␣ " for Scale Mode appears.
To change the parameter at the last digit, hit [T] key.

(3) By hitting [F] key, the function item will advance successively according to following list.



* "21. Co␣" and "61.oc.␣" will be passed depending on setting.

POINTS OF KEY OPERATION

* To advance the function item, hit [F] key.
** To change parameter, hit [T] key.
*** To stop setting operation and return to original measurement mode, hit [S] key.

PARAMETER LIST OF FUNCTIONS

1. SEt.	1	: Ordinary Weighing Mode
	2	: Counting Mode ... advance to 3. A.0
2. SEL.	1	: Comparator is not effective ...advance to 3. A.0
	2	: Comparator is effective .....advance to 21.Co.
21. Co.	1	: Constant judgment
	2	: Judgment of settled data only
22. Li.	1	: Judgment for full range
	0	: No judgment around zero and for negative data
23. bu.	0	: ◀ mark fixes, or No buzzer sign(option)
	1	: ◀ mark flickers or Buzzer sign for LOW data (option)
	2	: ◀ mark flickers or Buzzer sign for GOOD data(option)
	3	: ◀ mark flickers or Buzzer sign for HIGH data(option)
	4	: ◀ mark flickers or Buzzer sign for LOW/GOOD (option)
	5	: ◀ mark flickers or Buzzer sign for GOOD/HIGH(option)
	6	: ◀ mark flickers or Buzzer sign for LOW/HIGH (option)
3. A.0	1	: Auto-zero adjustment
	0	: No zero adjustment
4. A.P.	0	: Automatic power off in use of battery (option)-not effective
	1	: Automatic power off in use of battery (option)-effective
5. rE.	1	: Stabilization time Quick ↑ Stabilization judging range Wide ↑
	2	:
	3	:
	4	:
	5	: Slow ↓ Narrow ↓

* How to change parameters (conditions): See page 15.

6. IF.	0 :	No interfacing
	1 :	Constant serial output (6-digit) (with output option)
	2 :	Constant serial output (7-digit) (")
61.o.c.	0 :	No output
	1 :	Constant serial output
	2 :	Constant serial output of stabilized data
	3 :	Output by pressing [S] key
	4 :	Automatic output with a load after stabilization
	5 :	One output when stabilized (no output with unstable data)
	6 :	" (random output with unstable data)
	7 :	One output by pressing [S] key after stabilization
62.b.L.	1 :	1200 bps
	2 :	2400 bps
	3 :	4800 bps
63.PA.	0 :	No parity bit
	1 :	Odd parity check Available when set at 6. IF. 2
	2 :	Even parity check
7. un.	1 :	Weighing unit in "g"
	2 :	"kg"
	3 :	"ct"
	4 :	"oz"
	5 :	"lb"
	6 :	"ozt"
	7 :	"dwt"
	8 :	"gr"
	9 :	"tl" (Hongkong)
	A :	"tl" (Singapore, Malaysia)
	b :	"tl" (Taiwan)
	C :	"mon"

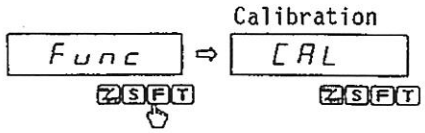
** Other weight units than "g", "kg" and "lb" are indicated by ▶ mark.
It is recommended to stick a seal of the unit at the ▶ mark.

SPAN CALIBRATION

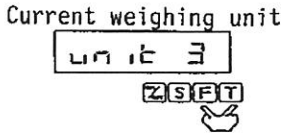
To achieve optimum accuracy from the scale, it should be calibrated in the area it is used, and recalibrated when it is relocated to other area.

The following calibration procedure is simple, not subject to operator errors, but does require a reference weight*of the full capacity of the scale.**

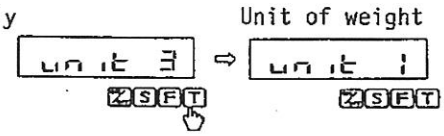
(1) Press [F] key until "CAL" appears after "Func".



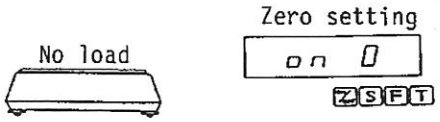
(2) Press [T] key first, then press [F] key together and release both at the same time. "unit ⌴" appears.



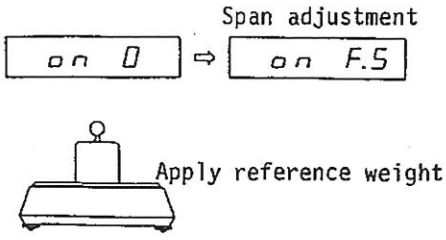
(3) The parameter after "unit" shows weight unit for calibration, currently linked with the set weight unit in "7. un.⌴". See page 17.
If the prepared reference weight* is different from the displayed one, change the display to the prepared one by hitting [T] key. After setting, hit [F] key.



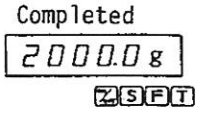
(4) The display will indicate "on 0". Verify that no load is on the pan, as zero adjustment is automatically done.



(5) The display will automatically advance to "on F.S". Apply the prepared reference weight*just in the centre of the weighing pan. The span will automatically be adjusted exactly.



(6) When the calibration is completed, the display will return to the measurment mode.



** The span calibration is available with a reference weight of over 1/2 of the scale capacity. Nevertheless, we recommend to use F.S.

ERRORS

0 - Err : The reference weight is over the full capacity.

1 - Err : The reference weight is less than 1/2 of the capacity.

2 - Err : The data error exceeds 1%. Or perhaps the scale is defective. Contact the shipper.

TABLES OF READABILITY & FULL SCALE FOR CALIBRATION 1/2

For various weighing units

PARAMETER			CG-150	
	UNIT	MARK	FULL SCALE	READBILITY
1	g	g	150.00	0.01
2	kg	kg	0.15000	0.00001
3	ct	▷	750.00	0.05
4	oz	▷	5.2000	0.0005
5	lb	lb	0.33000	0.00002
6	ozt	▷	4.80000	0.0005
7	dwt	▷	96.000	0.005
8	gr	▷	2300.0	0.2
9	HK tael	▷	4.0000	0.0002
A	SIN tael	▷	3.9000	0.0002
B	TW tael	▷	4.0000	0.0002
C	mom	▷	40.000	0.002

PARAMETER			CG-300	
	UNIT	MARK	FULL SCALE	READBILITY
1	g	g	300.00	0.01
2	kg	kg	0.30000	0.00001
3	ct	▷	1500.00	0.05
4	oz	▷	10.0000	0.0005
5	lb	lb	0.66000	0.00002
6	ozt	▷	9.60000	0.0005
7	dwt	▷	190.000	0.005
8	gr	▷	4600.0	0.2
9	HK tael	▷	8.0000	0.0002
A	SIN tael	▷	7.9000	0.0002
B	TW tael	▷	8.0000	0.0002
C	mom	▷	80.000	0.002

PARAMETER			CG-600	
	UNIT	MARK	FULL SCALE	READBILITY
1	g	g	600.00	0.02
2	kg	kg	0.60000	0.00002
3	ct	▷	3000.0	0.1
4	oz	▷	21.0000	0.0005
5	lb	lb	1.30000	0.00005
6	ozt	▷	19.0000	0.0005
7	dwt	▷	380.00	0.01
8	gr	▷	9200.0	0.5
9	HK tael	▷	16.0000	0.0005
A	SIN tael	▷	15.0000	0.0005
B	TW tael	▷	16.0000	0.0005
C	mom	▷	160.000	0.005

PARAMETER			CG-620	
	UNIT	MARK	FULL SCALE	READBILITY
1	g	g	620.00	0.01
2	kg	kg	0.62000	0.00001
3	ct	▷	3100.00	0.05
4	oz	▷	21.0000	0.0005
5	lb	lb	1.30000	0.00002
6	ozt	▷	19.0000	0.0005
7	dwt	▷	390.000	0.005
8	gr	▷	9500.0	0.2
9	HK tael	▷	16.0000	0.0002
A	SIN tael	▷	16.0000	0.0002
B	TW tael	▷	16.0000	0.0002
C	mom	▷	160.000	0.002

PARAMETER			CG-1500	
	UNIT	MARK	FULL SCALE	READBILITY
1	g	g	1500.0	0.01
2	kg	kg	1.5000	0.0001
3	ct	▷	7500.0	0.5
4	oz	▷	52.000	0.005
5	lb	lb	3.3000	0.0002
6	ozt	▷	48.000	0.005
7	dwt	▷	960.00	0.05
8	gr	▷	23000	2
9	HK tael	▷	40.000	0.002
A	SIN tael	▷	39.000	0.002
B	TW tael	▷	40.000	0.002
C	mom	▷	400.00	0.02

PARAMETER			CG-3000	
	UNIT	MARK	FULL SCALE	READBILITY
1	g	g	3000.0	0.01
2	kg	kg	3.0000	0.0001
3	ct	▷	15000.0	0.5
4	oz	▷	100.000	0.005
5	lb	lb	6.6000	0.0002
6	ozt	▷	96.000	0.005
7	dwt	▷	1900.00	0.05
8	gr	▷	46000	2
9	HK tael	▷	80.000	0.002
A	SIN tael	▷	79.000	0.002
B	TW tael	▷	80.000	0.002
C	mom	▷	800.00	0.02

TABLES FOR READABILITY & FULL SCALE FOR CALIBRATION 2/2

for various weighing units

PARAMETER		CG-6000		
	UNIT	MARK	FULL SCALE	READABILITY
1	g	g	6000.0	0.2
2	kg	kg	6.0000	0.0002
3	ct	▷	30000	1
4	oz	▷	210.000	0.005
5	lb	lb	13.0000	0.0005
6	ozt	▷	190.000	0.005
7	dwt	▷	3800.0	0.1
8	gr	▷	92000	5
9	HK tael	▷	160.000	0.005
A	SIN tael	▷	150.000	0.005
B	TW tael	▷	160.000	0.005
C	mom	▷	1600.00	0.05

PARAMETER		CG-6200		
	UNIT	MARK	FULL SCALE	READABILITY
1	g	g	6200.0	0.1
2	kg	kg	6.2000	0.0001
3	ct	▷	31000.0	0.5
4	oz	▷	210.000	0.005
5	lb	lb	13.0000	0.0002
6	ozt	▷	190.000	0.005
7	dwt	▷	3900.00	0.05
8	gr	▷	95000	2
9	HK tael	▷	160.000	0.002
A	SIN tael	▷	160.000	0.002
B	TW tael	▷	160.000	0.002
C	mom	▷	1600.00	0.02

PARAMETER		CG-12K		
	UNIT	MARK	FULL SCALE	READABILITY
1	g	g	12000	1
2	kg	kg	12.000	0.001
3	ct	▷	60000	5
4	oz	▷	420.00	0.05
5	lb	lb	26.000	0.002
6	ozt	▷	380.00	0.05
7	dwt	▷	7700.0	0.5
8	gr	▷	180000	20
9	HK tael	▷	320.00	0.02
A	SIN tael	▷	310.00	0.02
B	TW tael	▷	320.00	0.02
C	mom	▷	3200.0	0.2

UNIT	RATE	g rate
g	1	1
kg	0.001	1000
ct	5	0.2
oz	0.035273957	28.349527
lb	0.002204622	453.5924
ozt	0.032150742	31.103481
dwt	0.64301485	1.5551740
gr	15.432356	0.0647989
HK tael	0.0267173	37.428932
SIN tael	0.0264554	37.799466
TW tael	0.026666667	37.5
mom	0.26666667	3.75

TROUBLESHOOTINGS

SYMPTOMS	CAUSES & REMEDY
Impossible to set limits for comparator	* Scale mode is not set in comparator mode. See P.8 * Reference value is over the capacity of the scale. * Values are set as : Lower limit ≧ Upper limit
Display is unstable.	* Affected by a wind or oscillation. Check location and response speed. * The installation base is unstable. Check the base. * Weighing pan or tare touches something. Check.
Erroneous value reads in display	* Wrong taring operation. See page 7. * Scale is not level. See level, page 5. * The weighing pan or the tare touches something. * The span has changed by relocation or after long time lapse. Calibrate the scale referring to page 18.
Wrong linearity	* Characteristics have changed, or mechanism adjustment has changed by some reason. Contact shipper.
No display	* Adaptor is not connected, or the ON/OFF switch is turned to OFF. * Battery has been consumed (with battery option). Connect the adaptor, charge the battery. * Power has been turned off automatically by auto-power off fucntion (with battery option). Hit ON/OFF.
Unavailable weighing upto the capacity.	* Gross weight of the load exceeds scale capacity. Weighing range = Full capacity - Tare value
b-Err	* Electronic error, by a static electricity or noise. Contact the shipper.
L-Err	* In counting, the unit weight of samples is too light for the scale division. Countable unit weight is the readability of the scale or over.
o-Err	* The load exceeds the capacity of the scale. * The tare is too heavy.
u-Err	* Something contacts the weighing pan to lift it.
1-Err	* In span calibration: Reference weight is less than 1/2FS.
2-Err	* In span calibration: Error exceeds 1%.